# THE RELATIONSHIP BETWEEN INDOOR PM$_{10}$ EXPOSURE DURING PREGNANCY AND INFANT NEURODEVELOPMENT : THE BIRTH COHORT OF MOTHERS AND CHILDREN`S ENVIRONMENTAL HEALTH (MOCEH)

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**Background and Aims** : A few studies have reported that the effect of ETS in indoor on infant neurodevelopment. However, most of researches did not deal with infant neurodevelopment for PM exposure. Therefore, the aim of this study was to investigate the association between prenatal PM10 exposure and infant neurodevelopment.
**Methods**: We collected the eligible data of 1,751 pregnant women from three collaborating centers metropolitan area(Seoul), industrial area(Ulsan), and medium-sized urban area(Cheonan). Questionnaire was composed of residential factors, environmental exposure and general characteristics. We measured indoor PM$_{10}$ for 271 houses. And we estimated for emission rate of indoor PM$_{10}$ by using air exchanges per hour for residential characteristics of questionnaire (i.e., smoker in indoor, number of family, house type). We tested correlation coefficient between estimated and measured indoor PM$_{10}$. PM$_{10}$ spatial estimations were adjusted to correspond to relevant pregnancy periods (i.e., whole pregnancy and trimesters) for each woman. We measured mental developmental index (MDI) and psychomotor developmental index (PDI) score using bayley test [The Korean Bayley Scales of Infant Development (K-BSID-II)] on 6 month. We examined the relationship between indoor PM$_{10}$ during pregnancy and infant neurodevelopment for among 494 babies on 6 month.
**Results**: In multiple linear regression model after adjusting for maternal age, education, income, breast milk on 6 month, ETS, and gestational age, MDI was decreased by indoor PM$_{10}$ exposure during first trimester (β=-4.67, SE=0.09) and during total period (β=-3.81, SE=0.18). PDI was decreased by indoor PM$_{10}$ exposure during first trimester (β=-5.86, SE=0.11), during second trimester (β=-2.77, SE=0.14), and during total period (β=-6.03, SE=0.22).
**Conclusions**: Prenatal exposure to indoor PM$_{10}$ may affect infant neurodevelopment. These results suggest that developing strategies to reduce PM$_{10}$ exposure during pregnancy are required in order to prevent risks for fetal health.